IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re the Application of:

Osamu Takuman et al.

Title: SILICONE RUBBER COMPOSITION FOR APPLICATION AS ELECTRICAL INSULATION

Serial No.: 08/862,045

Filing Date: 5-22-97

Docket No.: TSL1194

Group Art Unit: 1712

Examiner: Mark Milstead

Appellants' Brief Under 37 C.F.R. § 1.192(a)

October 19, 1999

Assistant Commissioner of Patents
Washington, D.C. 20231

Sir:

This is an appeal from the Examiner's Final Action dated 3/3/99. The rejection of Claims 1-10 and 13-17 are appealed herein.

REAL PARTY IN INTEREST

The real party in interest in the present appealed patent application is: Dow Corning Asia, LTD., 4th Floor, AIG Building, 1-1-3, Marunouchi, Chiyoda-ku, Tokyo 100, Japan.

RELATED APPEALS AND INTERFERENCES

The Appellants, Appellants' assignee, and Appellants' legal representative are unaware of any other appeals or interferences which will directly affect or be directly affected by or have a bearing on the Board's decision in this pending appeal.

STATUS OF CLAIMS

Claims 1-10 and 13-17 are pending in the present appeal. Claims 11 and 12 have been canceled.

STATUS OF AMENDMENTS

No amendments have been filed subsequent to Final Rejection.

SUMMARY OF INVENTION

The present invention is an electrical insulating silicone rubber composition comprising

(A) 100 weight parts polyorganosiloxane comprising at least 2 silicon-bonded alkenyl groups in each molecule and having average compositional formula

$$R_aSiO_{(4-a)/2},$$

where R is selected from the group consisting of substituted monovalent hydrocarbon groups and unsubstituted monovalent hydrocarbon groups and a has a value of from 1.95 to 2.05 (described at p. 3, line 19 through p. 4, line 24),

(B) 1 to 300 weight parts surface-treated aluminum hydroxide powder surface treated with a treating agent selected from the group consisting of organomethoxysilanes, organoethoxysilanes, and organosilazanes (described at p. 4, line 25 through p. 5, line 17) and

(C) an organoperoxide curing agent in a quantity sufficient to cure the composition (described at p. 6, lines 12-16)

The composition is novel in that heretofore the use of an aluminum hydroxide powder surface treated with the described treating agents in an organoperoxide cured silicone rubber composition has not been described or recognized as providing improved electrical properties to the silicone rubber.

ISSUE

Whether sufficient motivation is found in the teachings of Kunieda, U.S. Pat. No. 5,369,161 and Azechi, U.S. Pat. No. 5,691,407 to make the combination suggested by the Examiner as making the present appealed claims obvious under 35 U.S.C. § 103. Specifically, whether the cited patents provide motivation to one of ordinary skill in the art to substitute the treated aluminum hydroxide used in the **platinum catalyzed** compositions of Azechi into the **peroxide catalyzed** composition of Kunieda thereby making obvious the Appellants' claimed compositions.

GROUPING OF CLAIMS

For purpose of this appeal, Claims 1-10 and 13-17 are to be treated as a single group.

ARGUMENT

Issue: Whether sufficient motivation is found in the teachings of Kunieda, U.S. Pat. No. 5,369,161 and Azechi, U.S. Pat. No. 5,691,407 to make the combination suggested by the Examiner as making the present appealed claims obvious under 35 U.S.C. § 103. Specifically, whether the cited patents provide motivation to one of ordinary skill in the art to substitute the treated aluminum hydroxide used in the **platinum catalyzed** compositions of Azechi into the **peroxide catalyzed** composition of Kunieda thereby making obvious the Appellants' claimed compositions.

The Examiner states that "Kunieda teaches the same composition as claimed by Applicants, except that the organosilanes of Component (B) are selected from a group consisting of organomethoxysilanes, an organoethoxysilanes and organosilazanes." The Appellants respectfully submit that this statement is not accurate. Kunieda does not teach the use of **any**

treating agent for the aluminum hydroxide. A key distinction between what is taught in Kunieda and what is claimed in the present appealed claims is that the aluminum hydroxide is **untreated** in Kunieda, while in the present appealed claims the aluminum hydroxide is **treated**.

The Examiner further states that Azechi "column 4, lines 26-48, teaches aluminum hydroxide is surfaced treated with suitable agents, such as vinyltrimethoxysilane, vinyltriethoxysilane, trimethylethoxysilane and hexamethyldisilazane." Continuing, the Examiner states that

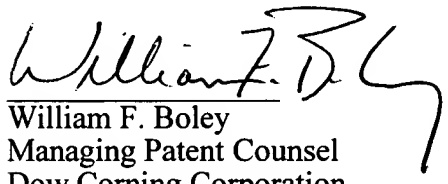
> At the time the time of the invention, one skilled in the art would have surfaced treated the aluminum hydroxide with organomethoxysilanes, organoethoxysilanes or organosilazanes. The motivation for doing so would have been that surface treatment of aluminum hydroxide with such compounds was well known in the art of electrical insulating silicone rubber compositions. One skilled in the art would have known that the surface treatment was essential for improving arc resistance and tracking resistance. Optimization of the desired properties of the electrical insulating silicone rubber composition would be enhanced by using various surface treatment agents. Therefore, it would have been obvious to combine Kunieda with Azechi to obtain the invention as specified in claim 1.

The Appellants respectfully submit that Azechi teaches the use of **treated aluminum hydroxide** in a silicone composition that is **platinum cured**. Azechi teaches in column 1, lines 44-46, that "Also it is believed in the prior art that if platinum catalyst are used in curing silicone rubber materials, the resulting silicone rubbers are deteriorated in electrical insulation." Therefore one cannot necessary conclude from the disclosure that treated aluminum hydroxide will offer improved electrical properties to any silicone composition, or if the improvement applies only to platinum cured materials because of the unique problems associated with platinum cured silicone compositions.

The composition defined by the present appealed claims are **peroxide cured**. The Appellants submit that at best the combination of Kunieda with Azechi invites an invitation to try the combination suggested as obvious by the Examiner. There is no teaching or suggestion in the cited patents that the **treated aluminum hydroxide** of Azechi would provide beneficial

electrical properties to the **peroxide cured** composition of the present invention. Therefore, the Appellants respectfully request that the Honorable Board of Patent Appeals and Interference overrule the Examiner's rejection of Claims 1-10 and 13-17 and allow these claims to issue..

Respectfully submitted,



William F. Boley
Managing Patent Counsel
Dow Corning Corporation
Reg. No. 33,386
(517) 496-8119

APPENDIX

1. An electrical insulating silicone rubber composition comprising

(A) 100 weight parts polyorganosiloxane comprising at least 2 silicon-bonded alkenyl groups in each molecule and having average compositional formula

$$R_aSiO_{(4-a)/2},$$

where R is selected from the group consisting of substituted monovalent hydrocarbon groups and unsubstituted monovalent hydrocarbon groups and a has a value of from 1.95 to 2.05,

(B) 1 to 300 weight parts surface-treated aluminum hydroxide powder surface treated with a treating agent selected from the group consisting of organomethoxysilanes, organoethoxysilanes, and organosilazanes,

and

(C) an organoperoxide curing agent in a quantity sufficient to cure the composition.

2. A composition according to Claim 1, where the polyorganosiloxane has a viscosity at 25°C of from 100 mPa·s to 20,000,000 mPa·s.

3. A composition according to Claim 2, where the polyorganosiloxane is selected from a group consisting of vinyldimethylsiloxy-endblocked polydimethylsiloxanes and vinyldimethylsiloxy-endblocked dimethylsiloxane-vinylmethylsiloxane copolymer.

4. A composition according to Claim 1, where the surface treated aluminum hydroxide powder has a particle size of from 0.1 mm to 50 mm.

5. A composition according to Claim 1, where the surface treated aluminum hydroxide powder is surface treated with an organomethoxysilane or an organoethoxysilane.

6. A composition according to Claim 5, where the surface treated aluminum hydroxide powder is surface treated with vinyltrimethoxysilane.

7. A composition according to Claim 5, where the surface treated aluminum hydroxide powder is surface treated with methyltrimethoxysilane.

8. A composition according to Claim 1, where the surface treated aluminum hydroxide powder is surface treated with an organosilazane.

9. A composition according to Claim 8, where the organosilazane is selected from the group consisting of hexamethyldisilazane and divinyltetramethyldisilazane.

10. A composition according to Claim 1, where the surface treated aluminum hydroxide powder is surface treated with from 0.1 to 30 weight percent of the treating agent.

11. **(CANCELED)** A composition according to Claim 1, where the curing agent is an organoperoxide.

12. **(CANCELED)** A composition according to Claim 1, where the curing agent is a combination of a hydrosilylation reaction catalyst and a polyorganohydrogensiloxane comprising at least 3 silicon-bonded hydrogen atoms in each molecule.

13. A composition according to Claim 1 further comprising

(D) 1 to 200 weight parts microparticulate silica.

14. A composition according to Claim 13 where the microparticulate silica is a fumed silica having a specific surface area greater than or equal to 50 m^2/g.

15. A composition according to Claim 13, where surface treated aluminum hydroxide powder is surface treated with vinyltrimethoxysilane.

16. A composition according to Claim 13, where the surface treated aluminum hydroxide powder is surface treated with methyltrimethoxysilane.

17. A composition according to Claim 5 where the treating agent is selected from the group consisting of methyltrimethoxysilane, methyltriethoxysilane, phenyltrimethoxysilane, ethyltrimethoxysilane, n-propyltriethoxysilane, vinyltrimethoxysilane, allyltrimethoxysilane, butenyltrimethoxysilane, hexenyltrimethoxysilane, γ-methacryoxypropyltrimethoxysilane, dimethyldimethoxysilane, dimethyldiethoxysilane, diphenyldimethoxysilane, and tetraethoxysilane.